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DOCKET NO. WEST14-00015
Customer No. 23990

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	:	Paul F. Struhsaker, et al.
Serial No.	:	09/839,729
Filed	:	April 20, 2001
For	:	APPARATUS AND METHOD FOR OPERATING A SUBSCRIBER INTERFACE IN A FIXED WIRELESS SYSTEM
Group No.	:	2617
Examiner	:	H.Q. Phan

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
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APPELLANTS' REPLY BRIEF

ARGUMENT

1. The rejection of claims 1–2, 4, 8–10, 12–14, 18 and 20 under 35 U.S.C. § 102(e) as being anticipated by *Kanterakis et al.*

Claims 1, 13 and 20:

Independent claims 1, 13 and 20 each recite cyclo-stationary filtering of successive bursts of a received data signal. As used in the specification, cyclo-stationary filtering refers to relying on the assumption that channel characteristics are relatively stationary across successive data bursts from a particular subscriber (i.e., change slowly relative to data burst rates) to apply equalizer weights computed for the data burst from a subscriber in one data frame to filtering of a data burst from the same subscriber within the next successive data frame, with the equalizer weights computed for the first data burst being employed to update the profile for the respective subscriber station and then used to filter a subsequent data burst from that subscriber station.

The Examiner's Answer states:

> In response to applicant's argument . . . . , it is noted that the features upon which applicant relies . . . . are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed Cir. 1993).

Examiner's Answer, page 13.

The words of a claim must be given their "plain meaning" unless such meaning is inconsistent with the specification. MPEP § 2111.01(I), p. 2100-38 (8th ed. rev. 5 August 2006).

Applicant may be his own lexicographer. MPEP § 2111.01(IV), p. 2100-41 (8th ed. rev. 5 August 2006). The term "cyclo-stationary filtering" is expressly defined in the specification:

> Cyclo-stationary adaptive filtering (CSAF) is performed upon the uplink data burst signal. CSAF is a signal processing technique to allow adaptive filters to operate in environments that exhibit cyclic/deterministic channel environments. Each burst of the data signal transmitted by a subscriber station forms a separate and distinct stationary channel environment. Each of the channels is processed by configuring the receive portion of the base station with a matched filter forming the equalizer, such as equalizers 303 and 305 (shown in FIGURE 3) for the specific channel. The values forming the profiles stored at the memory device of the controller are used to weight the equalizer, as appropriate.

Specification, page 32, lines 7-18. This definition is consistent with the "plain meaning" of the term "cyclo-stationary." The Examiner has not identified any evidence for concluding that "cyclo-stationary filtering" has a meaning differing from the meaning ascribed to that term in the specification. Accordingly, the Examiner has no basis for adopting any interpretation of the term "cyclo-stationary filtering" that is contrary to the meaning ascribed to that term in the specification, and adoption of such a contrary interpretation is arbitrary and capricious.

Given the appropriate interpretation of the term "cyclo-stationary filtering," it is clear that the feature "cyclo-stationary filtering of successive bursts of a received data signal" is not found in the cited reference. The Examiner's Answer states:

> Figure 3 of Kanterakis shows a base station receiver comprising a demodulator (312) for demodulating the burst data signal, which is transmitted from a remote station (also see fig. 12 and col. 12). The figure 3 also shows a controller (319) coupled to the demodulator for controlling the demodulation process. Kanterakis evidently describes the received signal as "the access-burst signal may include the plurality of RS-preamble signals, RS-power-control signals, and RS-pilot signals, and the data

> are considered concatenated to the access-burst signal" (see col. 12). Katerakis further discloses that "The programmable-matched filter 315 despreads the received spread-spectrum signal. A correlator, as an alternative, may be used as an equivalent means for despreading the received spread-spectrum signal. The preamble processor 316 detects the preamble portion of the received spread-spectrum signal. The pilot processor detects and synchronizes to the pilot portion of the received spread-spectrum signal. The data and control process detects and processes the data portion of the received spread-spectrum signal" (see col. 4)...Thus, Kanterakis teaches filtering of successive bursts according to the burst type and demodulating the bursts accordingly; therefore, disclosing cyclo-stationary filtering of successive bursts.

Examiner's Answer, pages 13-14. Applicants respectfully disagrees that this section, or any other part, of *Kanterakis et al* discloses cyclo-stationary filtering of successive bursts. As the Examiner points out above, *Kanterakis et al* teaches using the pilot and/or preamble portions of a current data segment to determine the weights for the programmable matched filter operating on that current data segment, not weights computed from a prior data segment, as defined in cyclo-stationary filtering.

Kanterakis et al does not use the term "cyclo-stationary filtering." Nor does *Kanterakis et al* describe applying equalizer weights computed for a data burst from a particular subscriber to filtering of a next successive data burst from that subscriber based on the assumption that channel characteristics are relatively stationary across successive data bursts.

Claim 9:

Claim 9 recites that the first burst data signal exhibits FEC (forward error correction) and that the cyclo-stationary filtering is performed upon an FEC-related value. Such a feature is not found in the cited reference.

The Examiner's Answer states:

> Kanterakis discloses the controller having control links couple to the filter, preamble processor, the FEC (forward error correction) decoder and FEC (forward error correction) encoder (see fig. 3 and col. 3). Kanterakis discloses that the burst signal is "transmitted in time, at increasing power levels. The power from RS-preamble signal to RS-preamble signal increases according to the power values $P_0, P_1, P_2 \ldots$. The power values increase according to their index, that is, $P_0 < P_1 < P_2$" and the figure 3 clearly shows the controller controlling the filter for filtering the burst signal. Since, RS-preamble signal is a part of the burst signal and preamble processor (which coupled to FEC decoder and encoder) processes the RS-preamble signal; therfore, one of ordinary skill in the art can intrepreted that time and/or power level is a FEC-related value.

Examiner's Answer, page 16. Applicant respectfully disagrees with this assertion. The mere fact that the preamble processor is coupled to the FEC decoder and encoder does not make every parameter of a signal processed by the preamble processor an FEC-related value. In fact, a person of ordinary skill in the art would not interpret time or power as an FEC-related value. *Kanterakis et al* does not disclose anywhere that cyclo-stationary filtering is performed upon an FEC-related value.

Claim 18:

Claim 18 recites that the controller determines times of arrival and directions of the bursts which form the data signals. Such a feature is not found in the cited reference. The cited portion of *Kanterakis et al* states:

> Pre-Data Power Control
>
> FIG. 12 shows an alternative embodiment for the RS-access-burst signal transmitted from the remote station to the base station. The base station transmits a frame-timing signal using the broadcast common-synchronization channel. The remote station synchronizes to the broadcast common-synchronization channel and retrieves frame-timing information from the frame-timing signal. The frame-timing

information includes the timing for when the remote station can transmit an access-burst signal. Using the frame-timing information, the remote station sets up a transmission timing schedule. For this embodiment, the remote station divides the frame time duration into a number of access-time slots. The duration of a time slot can be half the duration of an access slot. The remote station starts transmitting an access-burst signal at the beginning of an access-time slot. The frame-time reference of the remote station is not necessarily the same as the frame-time reference of the base station, due to propagation delays.

The access-burst signal of FIG. 12 comprises a plurality of RS-preamble signals, RS-power-control signals, and RS-pilot signals, respectively, transmitted in time, at increasing power levels. The power from RS-preamble signal to RS-preamble signal increases according to the power values P_0, P_1, P_2 . . . . The power values increase according to their index, that is, $P_0 < P_1 < P_2$, ... The combined plurality of RS-preamble signals, RS-power-control signals, and RS-pilot signals, makeup part of, or all of, the access-burst signal. The power level of the RS-power-control signal and the RS-pilot signal may be at a proportion of the power level of the RS-preamble signal.

The plurality of RS-preamble signals, RS-power-control signals, and RS-pilot signals is followed in time by a data. Thus, the access-burst signal also may include a data part. Alternatively, the access-burst signal may include the plurality of RS-preamble signals, RS-power-control signals, and RS-pilot signals, and the data are considered concatenated to the access-burst signal. The data may include message information, or other information such as signaling, etc. The data preferably are concatenated to, or are part of, the access-burst signal, but may be sent separately from the access-burst signal.

As shown in FIG. 12, an RS-power-control signal, which is a time portion of the access-burst signal, is transmitted first in time during the time interval between RS preamble signal to RS preamble signal. The RS-preamble signal is a time portion of the access-burst signal, as shown in FIG. 12. An RS-pilot signal is-transmitted second in time during the time interval between RS-preamble signal to RS-preamble signal.

The RS-power-control signal is for power control of a dedicated downlink channel. The base station transmits the dedicated downlink in response to detecting the RS-preamble signal transmitted by the remote station. The RS-pilot signal allows the base station to measure the received power from the remote station, and consequently power control the remote station using power control information transmitted from the base station to the remote station.

Kanterakis et al, column 11, line 60 through column 12, line 52. No mention of times of arrival and direction (of arrival) is made in the cited portion of *Kanterakis et al.* The Examiner cites another portion of *Kanterakis et al* from column 7:

> According to FIG. 5, a remote station picks an access slot in a random fashion and tries to obtain a connection with a base station by transmitting a preamble waveform. The bas station is able to recognize this preamble, and is expecting its reception at the beginning of each access slot. The length of the access burst is variable and the length of the access burst is allowed to vary from a few access slots to many frame durations.

Kanterakis et al, column 7, line 62 through column 8, line 2. There is also no mention of times of arrival and direction (of arrival) made in this cited portion of *Kanterakis et al.*

CONCLUSION

The cited references fail to depict or describe all features of the claimed invention in the appealed claims, taken alone or in combination. Therefore, the rejections under 35 U.S.C. §§ 102 and 103 are improper. Applicant respectfully requests that the Board of Appeals reverse the decision of the Examiner below rejecting pending claims 1–20 in the application.

Respectfully submitted,

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